ABSTRACT OF THE DISCLOSURE

To provide an orthogonal frequency division multiplex modem circuit which can multiplex signals, whose bit rates and QoS are different from one another, and can transmit the signals via one OFDM line. A serial/parallel converter converts input signals into a complex parallel signal respectively, and a sub carrier and a modulation system are assigned every communication channel. A randomizer changes the alignment sequence of the signal, a discrete inverse Fourier transformer processes the signal, a parallel/serial converter converts the signal into a serial signal, and a transmitter performs the orthogonal modulation of the signal to output the signal from an antenna. A receiver performs orthogonal demodulation of the signal received with an antenna, a serial/parallel converter converts the signal into a parallel signal, and a discrete Fourier transformer processes the parallel signal. In addition, a de-randomizer restores the alignment sequence of the subcarriers into the original condition, and a parallel/serial converter decodes and outputs the signal.